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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,989	12/28/2001	Ronald J. Pettis	7767-177409	4392

7590 09/17/2004

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EXAMINER	
WILLIAMS, CATHERINE SERKE	
ART UNIT	**PAPER NUMBER**
3763	

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/028,989	PETTIS ET AL.	
	Examiner	Art Unit	
	Catherine S. Williams	3763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *69-104* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *69-104* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 10/24/2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the foreign references and non-patent literature have not been considered. Copies of non-patent literature have been received; however, these references (authored by Marian et al; Sveinsson; Corbo et al; and Bronaugh et al) do not match the references list on the 1449 dated 10/24/2004.

Claim Rejections - 35 USC § 112

The rejection of claims 21 and 46 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been withdrawn in light of the amendment to the claims dated 6/21/2004.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 69-72,74-75,79-89,94-95 and 99-104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross (US Pat# 5,527,288) in view of Srivastava (USPN 6,007,821). Gross discloses an intradermal compartment drug delivery device that includes administering a substance through a small gauge hollow needle. As shown in figure 3, the diameter of the outlet opening is about 1/3 the length of the needle. Therefore, if the length of the needle is between 0.3 to 3.0 mm then the outlet opening is about 0.1-1.0 mm. The needle has an outlet at a depth of between most preferably .3 to 1.0 mm when inserted into the dermis which as disclosed would result in delivery of the substance at a depth of between .3 to 2 mm. See 2:18-21. Additionally, Gross discloses that "the drug is delivered directly to a capillary-containing tissue and has no barriers to pass through before entering the vascular system". See 3:50-52. This capillary-containing tissue is the intradermal compartment even though that term is not used in Gross' specification. The diameter of the needle is 0.1-0.2mm. The substances for injection include a variety of substances that include peptides, proteins, hormones, insulin, nucleic acids, and hydrophobic and hydrophilic compositions. See 6:59+. As shown in figure 3, the needle is inserted perpendicularly into the skin. Means for actively discharging the drug include an infusion pump. See 2:31-35. Example 1 and 2 disclose an infusion flow rate of 0.1 ml/min. See 10:60+.

Gross meets the claim limitations as described above but fails to include that the dosage of the substance for achieving a biological effect is reduced compared to when the substance is delivered to a subcutaneous compartment. However, Srivastava discloses a method for treatment of autoimmune disease that includes the teaching that "while both subcutaneous and intradermal

routes of administration are effective, intradermal injections typically require a lower dosage and are, therefore, preferred with respect to economy of materials". See 20:3-6.

At the time of the invention, it would have been obvious to use the invention of Gross to administer the composition at the intradermal dosage value as taught by Srivastava. Srivastava teaches that intradermal injection a preferred route of delivery for the gp96 protein and Gross teaches that typical drugs for delivery include proteins. A motivation for the combination would be to use the device of Gross for its intended use.

Claims 69,73,85 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross (US Pat# 5,800,420) in view of Srivastava (USPN 6,007,821). Gross discloses an intradermal compartment drug delivery device that includes administering a substance through a small gauge hollow needle having an outlet with an exposed height of between most preferably .3 to 1.0 mm which as disclosed would result in delivery of the substance at a depth of between .3 to 2 mm. See 10:32-39. The disclosure also indicates that the device can be used to deliver a bolus injection (inherently less than 10 minutes in duration). See 3:29-32. Additionally, Gross discloses that "communication can be established with the capillary system of the dermis". See Paragraph 4 of the Detailed Description of the Invention. This capillary-containing tissue is the intradermal compartment even though that term is not used in Gross' specification.

Gross meets the claim limitations as described above but fails to include that the dosage of the substance for achieving a biological effect is reduced compared to when the substance is delivered to a subcutaneous compartment. However, Srivastava discloses a method for treatment of autoimmune disease that includes the teaching that "while both subcutaneous and intradermal

routes of administration are effective, intradermal injections typically require a lower dosage and are, therefore, preferred with respect to economy of materials". See 20:3-6.

At the time of the invention, it would have been obvious to use the invention of Gross to administer the composition at the intradermal dosage value as taught by Srivastava. Srivastava teaches that intradermal injection a preferred route of delivery for the gp96 protein and Gross teaches that typical drugs for delivery include proteins. A motivation for the combination would be to use the device of Gross for its intended use.

Claims 90-92 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Gross in view of Srivastava in further view of Palmer (US Pat# 6,537,242). Both Gross references in view of Srivastava independently meet the claim limitations as described above for claim 85 but both fail to teach an array of microneedles that includes at least 6 needles.

However, Palmer discloses an intradermal drug delivery device that includes an array of microneedles that includes at least 6 needles. See figure 5. The device of Palmer is designed as an "apparatus for enhancing the penetration of a penetrating device into the skin of a patient". See Summary of Palmer. It is noted that these claims have been given a priority date back to 6/29/2001.

At the time of the invention it would have been obvious to incorporate the teaching of a needle array of Palmer into the invention of Gross in view of Srivastava. All the references and the instant invention are analogous in the art; therefore, a combination is proper. Additionally, the motivation for the incorporation is provided by Palmer in that the incorporation of the needle array would enable "enhancing the penetration". See Palmer.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 69-104 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6, 12-25, 31-47, 53-56, 62-63 of copending Application No. 09/893,746. Although the conflicting claims are not identical, they are not patentably distinct from each other because the both claim intradermal injection with enhanced bioavailablity of an injected substance to a patient.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments filed 6/21/2004 have been fully considered but they are not persuasive. Each argument regarding each rejection is addressed below.

Applicant argues that Gross (5,527,288) does not describe delivery or targeting drugs into the intradermal compartment. The only description in the instant specification that attempts to define the intradermal compartment is in paragraph 40 which states "IV-like pharmacokinetics is accomplished by administering drugs into the dermal compartment in intimate contact with the capillary microvasculature and lymphatic microvasculature." Therefore, one reasonably assumes from applicant's specification that the targeted area/depth of the dermis is the region of the dermis that is vascularized with capillaries. Gross clearly sets forth that this region of the dermis is the targeted region of his invention, albeit possibly along with other regions, in paragraph 4 of the Description of Preferred Embodiments which is quoted above and states "the drug is delivered directly to a **capillary-containing tissue** and **has no barriers to pass through before entering the vascular system**." [Emphasis added]. Clearly, this is the same intradermal compartment that applicant's specification describes.

Applicant also asserts that Gross (5,527,288) does not have the correct needle length to deliver a drug to the intradermal compartment. Claim 1 recites that the outlet of the needle is "inserted into the skin at a depth of between 0.3 mm and 2 mm. Gross defines the needle to project outward of the housing by most preferably 0.3-1.0 mm. See 2:18. Additionally, Gross describes that the lower surface of the housing comes in contact with the patient's skin during insertion of the needle which means that the entire length of the needle is inserted into the patient's skin. Clearly, 0.3-1.0mm falls into applicant's claimed range of 0.3-2.0mm.

Applicant asserts that Gross (5,527,288) is devoid of any teaching relating to the configuration of the needle required to prevent leakage of the drug substance outside the intradermal space. It is noted that these features upon which applicant relies are not recited in

the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant asserts that Gross (5,527,288) fails to appreciate the complications associated with true intradermal delivery resulting from backpressure exerted by the skin itself and the pressure built up from accumulating fluid. It is noted that these features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Additionally, Gross dose address the overall problem of backpressure in the Background of the Invention. See 1:47-48.

Applicant's arguments with respect Gross (5,527,288) fails to appreciate that delivering the substance intradermally leads to reduced dosing as compared to when the substance is administered subcutaneously has been considered but are moot in view of the new ground(s) of rejection above.

Applicant argues that Gross (5,800,420) does not describe delivery or targeting drugs into the intradermal compartment. As stated above, the only description in the instant specification that attempts to define the intradermal compartment is in paragraph 40 which states "IV-like pharmacokinetics is accomplished by administering drugs into the dermal compartment in intimate contact with the capillary microvasculature and lymphatic microvasculature." Therefore, one reasonably assumes from applicant's specification that the targeted area/depth of the dermis is the region of the dermis that is vascularized with capillaries. Gross clearly sets

forth that this region of the dermis is the targeted region of his invention, albeit possibly along with other regions, in paragraph 4 of the Detailed Description of the Invention which is quoted above and states "communication can be established with the **capillary system of the dermis**" [Emphasis added]. Clearly, this is the same intradermal compartment that applicant's specification describes.

Applicant also asserts that Gross (5,800,420) does not have the correct needle length to deliver a drug to the intradermal compartment. Claim 1 recites that the outlet of the needle is "inserted into the skin at a depth of between 0.3 mm and 2 mm. Gross defines the needle to project outward of the housing by most preferably 0.3-1.0 mm. See 10:34. Additionally, Gross describes that the lower surface of the housing comes in contact with the patient's skin during insertion of the needle which means that the entire length of the needle is inserted into the patient's skin. Clearly, 0.3-1.0mm falls into applicant's claimed range of 0.3-2.0mm.

Applicant's arguments with respect to the Palmer rejection have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Catherine S. Williams whose telephone number is 703-308-4846. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nicholas D. Lucchesi can be reached on 703-308-2698. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2192.

Catherine S. Williams CSW.
January 12, 2004

NICHOLAS D. LUCCHESI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700